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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,782	01/15/2004	Mahesh C. Bhardwaj	503-040069	6316
28289	7590	09/12/2005		
THE WEBB LAW FIRM, P.C. 700 KOPPERS BUILDING 436 SEVENTH AVENUE PITTSBURGH, PA 15219			EXAMINER DOUGHERTY, THOMAS M	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 09/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/758,782

Applicant(s)

BHARDWAJ, MAHESH C.

Examiner

Thomas M. Dougherty

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 504.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1-3 and 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Takashi et al. (JP 11-155857). Takashi et al. show (fig. 2) an acoustic impedance matching material (8) having a plane face comprising a first homogenous matrix material (10) with embedded fibers, clusters of fibers, or rods (9) of a second material oriented perpendicular to the plane face.

The acoustic impedances of the first (10) and second (9) materials are selected to promote sound transfer perpendicular to the plane face and to attenuate sound transfer parallel to the plane face. See paragraph 13 in the provided translation. Note also, that this requirement is met by Takashi et al. since they show the claimed structural features.

The first material (10) is electrically non-conductive and the second material (9) is electrically conductive. Note the range of materials at paragraph 14 of the provided translation.

Note at paragraph 14 that the first material (10) may be electrically non-conductive and the second material (9) may also be non-electrically conductive.

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Takashi et al. show (fig. 1) a piezoelectric transducer comprising a piezoelectric layer (1) and an adjacent layer of an acoustic impedance matching material (8) having a plane face comprising a first homogenous matrix material (10) with embedded fibers, clusters of fibers, or rods (9) of a second material oriented perpendicular to the plane face.

As noted, the acoustic impedances of the first (10) and second (9) materials are selected to promote sound transfer perpendicular to the plane face and to attenuate sound transfer parallel to the plane face. See paragraph 13 in the provided translation. Note also, that this requirement is met by Takashi et al. since they show the claimed structural features.

As noted, the first material (10) is electrically non-conductive and the second material (9) is electrically conductive. Note the range of materials at paragraph 14 of the provided translation.

As noted at paragraph 14 the first material (10) may be electrically non-conductive and the second material (9) may also be non-electrically conductive.

Claim 1, 2, 7, 8, 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by McElroy et al. (US 3,795,866). McElroy et al. show (fig. 2) an acoustic impedance matching material (53) having a plane face comprising a first homogenous matrix material (not numbered) with embedded fibers (not numbered), clusters of fibers, or rods of a second material oriented perpendicular to the plane face.

The acoustic impedances of the first and second materials are selected to promote sound transfer perpendicular to the plane face and to attenuate sound transfer parallel to the plane face. See col. 5, ll. 37-50. Note also, that this requirement is met by McElroy et al. since they show the claimed structural features.

McElroy et al. show (fig. 2 and fig. 3) a piezoelectric transducer comprising a piezoelectric layer (56, 56') and an adjacent layer of an acoustic impedance matching material (53, 53') having a plane face comprising a first homogenous matrix material (not numbered) with embedded fibers, clusters of fibers, or rods (also not numbered) of a second material oriented perpendicular to the plane face.

As noted, the acoustic impedances of the first and second materials are selected to promote sound transfer perpendicular to the plane face and to attenuate sound transfer parallel to the plane face. See col. 5, ll. 37-50. Note also, that this requirement is met by McElroy et al. since they show the claimed structural features.

The fiber orientation (see 53' in fig. 3) is well defined.

The fibers are randomly distributed (see 53 in fig. 2).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of Takashi et al. (JP 11-155857) or McElroy et al. (US 3,795,866). Given the inventions of either Takashi et al. or McElroy et al., neither shows their first material being electrically conductive and the second material as being also electrically conductive, nor does either show the first material as being electrically conductive and the second material as being non-electrically conductive.

It would have been obvious to one having ordinary skill in the art to employ any suitable material for either the first or second materials of either Takashi et al. or McElroy et al., such as the materials with the properties claimed since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining prior art cited reads on at least some aspects of the claimed invention.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

tmd  
tmd

September 7, 2005

*Thomas M. Dougherty*  
TOM DOUGHERTY  
PRIMARY EXAMINER